

## **What is claimed is:**

**[Claim 1]** An optical transceiver, comprising:

a transmitter comprising a laser diode and a laser driver providing a drive signal to the laser diode;

a receiver comprising a photodiode and signal recovery circuitry; and

a microcontroller coupled to the transmitter and receiver and providing a modulated power control current to the laser during an impulse test mode to transmit high optical power signal and monitoring received signals to detect reflections.

**[Claim 2]** An optical transceiver as set out in claim 1, wherein said transmitter and receiver are coupled to same fiber.

**[Claim 3]** An optical transceiver as set out in claim 1, wherein said modulated power control is controlling a laser driver that has modulation and bias power control inputs and wherein said microcontroller modulates said bias control input during said test mode.

**[Claim 4]** An optical transceiver as set out in claim 1, wherein said microcontroller modulates said power control signal employing a dedicated transistor for direct high current impulse drive of the laser.

**[Claim 5]** An optical transceiver as set out in claim 1, wherein said receiver further comprises a transimpedance amplifier coupled to the photodiode and wherein said microcontroller monitors the output of said transimpedance amplifier during said impulse test mode.

**[Claim 6]** An optical transceiver as set out in claim 5, further comprising a comparator coupled between the output of said transimpedance amplifier and said microcontroller, for detecting signals at the output of the transimpedance amplifier.

**[Claim 7]** An optical transceiver as set out in claim 6, wherein said comparator detection level is controlled during the impulse test mode to be more sensitive than during data transport mode.

**[Claim 8]** An optical transceiver as set out in claim 1, wherein the impulse test signal comprise a code sequence.

**[Claim 9]** An optical transceiver as set out in claim 1, wherein said microcontroller is capable to detect the code sequence at the output of the comparator.

**[Claim 10]** A method for detection of high optical reflection in a fiber optic network, comprising:

transmitting an impulse test signal by modulating a laser transmitter using an impulse test transmission mode which is different than a data transmission mode used during normal operating conditions; and

detecting any received signals modulated using said test transmission mode within a predetermined time period after said transmitting.

**[Claim 11]** A method for fault detection in a fiber optic network as set out in claim 10, wherein said test transmission mode comprises modulating the laser at a power level above the minimum threshold for normal data transmission.

**[Claim 12]** A method for fault detection in a fiber optic network as set out in claim 10, wherein said test transmission mode comprises modulating the laser at a frequency substantially lower than during normal data transmission.

**[Claim 13]** A method for high reflection detection in a fiber optic network as set out in claim 10, further comprising detecting and measuring the time delay for receiving the reflected test pulse and determining the location of the reflection.

**[Claim 14]** A method for fault detection in a fiber optic network as set out in claim 10, further comprising increasing the laser transmitter power during transmission of said short duration test pulse.

**[Claim 15]** A method for fault detection in a fiber optic network as set out in claim 10, further comprising increasing the detection sensitivity after the transmission of the said short duration test pulse.